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ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: DNA ENCODING SNORF33 RECEPTOR

(57) Abstract: This invention provides isolated nucleic acids encoding mammalian SNORF33 receptors, purified mammalian SNORF33 receptors, vectors comprising nucleic acid encoding mammalian SNORF33 receptors, cells comprising such vectors, antibodies directed to mammalian SNORF33 receptors, nucleic acid probes useful for detecting nucleic acid encoding mammalian SNORF33 receptors, antisense oligonucleotides complementary to unique sequences of nucleic acid encoding mammalian SNORF33 receptors, transgenic, nonhuman animals which express DNA encoding normal or mutant mammalian SNORF33 receptors, methods of isolating mammalian SNORF33 receptors, methods of treating an abnormality that is linked to the activity of the mammalian SNORF33 receptors, as well as methods of determining binding of compounds to mammalian SNORF33 receptors, methods of identifying agonists and antagonists of SNORF33 receptors, and agonists and antagonists so identified.

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## AMENDED CLAIMS

[received by the International Bureau on 15 December 2000 (15.12.00);  
original claims 33 and 34 amended; remaining claims unchanged (1 page)]

26. The plasmid of claim 23 designated pcDNA3.1-rSNORF33-f  
(ATCC Patent Depository No. PTA-102).
27. The plasmid of claim 23 designated pEXJ-mSNORF33-f  
(ATCC Patent Depository No. PTA-1665).
28. A cell comprising the vector of claim 21.
29. A cell of claim 28, wherein the cell is a non-mammalian  
cell.
30. A cell of claim 29, wherein the non-mammalian cell is  
a *Xenopus* oocyte cell or a *Xenopus* melanophore cell.
31. A cell of claim 28, wherein the cell is a mammalian  
cell.
32. A mammalian cell of claim 31, wherein the cell is a  
COS-7 cell, a 293 human embryonic kidney cell, a NIH-  
3T3 cell, a LM(tk-) cell, a mouse Y1 cell, or a CHO  
cell.
33. The CHO cell of claim 32 designated CHO-ratSNORF33-7  
(ATCC Patent Depository No. PTA-1807).
34. The 293 cell of claim 32 designated 293-ratSNORF33-31  
(ATCC Patent Depository No. PTA-1806).
35. A cell of claim 24, wherein the cell is an insect cell.
36. An insect cell of claim 29, wherein the insect cell is

STATEMENT UNDER ARTICLE 19(1)

The accompanying amendments under Article 19 to the claims have been made to include American Type Culture Collection (ATCC) deposit information which was not available at the time of filing the International Application. Applicant maintains that the replacement page 201 is made merely to complete the application. No new matter has been added.



## FIGURE 2

[illegible]

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FIGURE 3A

1 ATTGCTCGACAGCCAAAGGGACAGAGCAGCCGTGTGTTAGTTCTCTGTAGTGAIGCATCT 60  
61 TTGCCACAATAGCGCGAATATTTCCCCACACGAAACAGCAACTGGTCAAGGATGTCCGTGC 120  
121 TTCGCTGTACAGCTTAATATCACTCAATAATTCTAACCACTCTGGTTGGCAACTTAATAGT 180  
181 AATCATTTTCGATATCCCACCTTCAAGCAACTTCACACGCCCCACAAATTGGCTCCTTCATTC 240  
241 CATGGCCGTTGTGCGACTTTCTGTCTGGGCTGTCTGGTCAATGCCCTACAGCATGGTGAGAAC 300  
301 AGTTGAGCACTGCTGGTACTTTTGGGGAACCTCTCTGCAAACTTCACACCAGCACTGATAT 360  
361 CATGCTGAGCTCGGCATCCAATTCCTCCACCTAGCCCTTCAATTTCCATTGACCGCTACTATGC 420  
421 TGTGTCCGACCCCTTTAAGATACAAAGCCAAAGATCAATCTCGCCGCCCATTTTGTGATGAT 480  
481 CCTCATTAGCTGGAGCCCTTCCTGCTGTTTGTGCAATTTGGGATGATCTTCCTGGAGCTGAA 540  
541 CTTAGAAGGAGTTGAGGAGCTGTATCACAATCAGGTCTCTGCCCCTGCGCGGCTGTTTTC 600  
601 CTTCTCAGTAAAGTATCTGGGGTACTGGCATTCATGACGTCTTTCTATATACCTGGATC 660

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## FIGURE 3B

661 TGTTATGTTATTTGTTTACTATAGAAATATATTTCATAGCTAAAGGACAAGCAAGGTCAAT 720  
721 TAAATCGTGCAAAATCTTCAAGTTGGATTTGGAAAGGGGAAAGCAGAGCGGCCACAAAGCAAGGA 780  
781 AACAAAGCCCGGAAACCTTAGGGATCATGGTGGGCGTTTTCCTCCTGTGCTGGTGCCC 840  
841 GTTCTTTTCTGCAATGGTCCCTGGACCCCTTTCCTGGGCTATGTTATCCCCACCCACTCTGAA 900  
901 TGACACACTGAATTGGTTTGGGTACCTGAACTCTGCCCTTCAACCCGATGGTTTATGCCCTT 960  
961 TTTCTATCCCCTGGTTCAGAAAGAGCGTTGAAGATGGTTCTCTTCGGTAAATTTTCCAAA 1020  
1021 AGATTCATCTAGGCTAAAGTTATTTTGTAAACGCAATCCCATGAAACCAGTATATTTTGTGA 1080  
1081 GTTCTTAAGAGCAGTTGGTGA 1101

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FIGURE 4A

1 M H L C H N S A N I S H T N S N W S R D 20  
21 V R A S L Y S L I S L I I L T T L V G N 40  
41 L I V I I S I S H F K Q L H T P T N W L 60  
61 L H S M A V V D F L L G C L V M P Y S M 80  
81 V R T V E H C W Y F G E L F C K L H T S 100  
101 T D I M L S S A S I L H L A F I S I D R 120  
121 Y Y A V C D P L R Y K A K I N L A A I E 140  
141 V M I L I S W S L P A V F A F G M I F L 160  
161 E L N L E G V E E L Y H N Q V F C L R G 180  
181 C F P F S K V S G V L A F M T S F Y I 200  
201 R G S V M L F V Y Y R I Y F I A K G Q A 220



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## FIGURE 4B

221 R S I N R A N L Q V G L E G E S R A P Q 240  
241 S K E T K A A K T L G I M V G V F L L C 260  
261 W C P F F C M V L D P F L G Y V I P P 280  
281 T L N D T L N W F G Y L N S A F N P M V 300  
301 Y A F F Y P W F R R A L K M V L F G K I 320  
321 F Q K D S S R S K L F L 332

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FIGURE 5A

1 TCAGGAATGATGCCCTTTTGCCACAATAATAATTAATATTTCCCTGTGTGAAAAACAACCTGG 60  
61 TCAAATGATGTCCGTGCTTCCCCTGTACAGTTTAAATGGTGCTCATAAATCTGACCACACTC 120  
121 GTTGGCAATCTGATAGTTATTGTTTCTATATCACACTTCAAACAACCTTCATACCCCAACA 180  
181 AATGGCTCATTCATCCATGGCCACTGTGGACTTTCTTCTGGGGTGTCTGGTCATGCCT 240  
241 TACAGTATGGTGAGATCTGCTGAGCCACTGTTGGTATTTTGGAGAAGTCTTCTGTAAAATT 300  
301 CACACAAGCACCGACATTATGCTGAGCTCAGCCCTCCATTTTCCATTGTCTTTTCATCTCC 360  
361 ATTGACCGCTACTATGCTGTGTGTGATCCACTGAGATATAAAGCCCAAGATGAATATCTTG 420  
421 GTTATTTGTGTGATGATCTTCATTAGTTGGAGTGTCCTGCTGTTTTCGATTTGGAATG 480  
481 ATCTTTCTGGAGCTAAACTTCAAAGGGCGCTGAAGAGATATATTACAACATGTTCACTGC 540  
541 AGAGGAGGTTGCTCTGCTCTTCTTTAGCAAATACTGGGGTACTGACCTTTATGACTTCT 600  
601 TTTTATATACCTGGATCTATTATGTTATGTGTCATTACAGAATAATATCTTATCGCTAAA 660

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FIGURE 5B

661	GAACAGGCAAGATTAAATTAGTGATGCCAATCAGAAAGCTCCAAATTGGATTGGAAATGAAA	720
721	AATGGAATTCAACAAGCAAGAAAGGAAAGCTGTGAAGACATTGGGGATTGTGATGGGA	780
781	GTTTCCCTAATATGCTGGTGCCCTTTCTTTATCTGTACAGTCATGGACCCCTTTCTTCAC	840
841	TACATTATCCACCTACTTTGAATGATGTGTGATTGGTTGGCTACTTGAACCTCTACA	900
901	TTTAATCCAATGGTTTATGCAATTTTCTATCCTTGCTTAGAAAAGCACTGAAGATGATG	960
961	CTGT'TGGTAAAATTTTCCAAAAGATTATCCAGGTGTAAATTAATTTTGGAAATTGAGT	1020
1021	TCATAGAATTATTATATT	1038

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FIGURE 6A

1	M	M	P	F	C	H	N	I	I	N	I	S	C	V	K	N	N	W	S	N	20
21	D	V	R	A	S	L	Y	S	L	M	V	L	I	I	L	T	T	L	V	G	40
41	N	L	I	V	I	V	S	I	S	H	F	K	Q	L	H	T	P	T	N	W	60
61	L	I	H	S	M	A	T	V	D	F	L	L	G	C	L	V	M	P	Y	S	80
81	M	V	R	S	A	E	H	C	W	Y	F	G	E	V	F	C	K	I	H	T	100
101	S	T	D	I	M	L	S	S	A	S	I	F	H	L	S	F	I	S	I	D	120
121	R	Y	Y	A	V	C	D	P	L	R	Y	K	A	K	M	N	I	L	V	I	140
141	C	V	M	I	F	I	S	W	S	V	P	A	V	F	A	F	G	M	I	F	160
161	L	F	L	N	F	K	G	A	E	E	I	Y	Y	K	H	V	H	C	R	G	180
181	G	C	S	V	F	F	S	K	I	S	G	V	L	T	F	M	T	S	F	Y	200
201	I	P	G	S	I	M	L	C	V	Y	Y	R	I	Y	L	I	A	K	E	Q	220

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FIGURE 6B

221	A	R	L	I	S	D	A	N	Q	K	L	Q	I	G	L	E	M	K	N	G	240
241	I	S	Q	S	K	E	R	K	A	V	K	T	L	G	I	V	M	G	V	F	260
261	L	I	C	W	C	P	F	F	I	C	T	V	M	D	P	F	L	H	Y	I	280
281	I	P	P	T	L	N	D	V	L	I	W	F	G	Y	L	N	S	T	F	N	300
301	P	M	V	Y	A	F	E	Y	P	W	F	R	K	A	L	K	M	M	L	F	320
321	G	K	I	F	Q	K	D	S	S	R	C	K	L	F	L	E	L	S	S	*	340

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**FIGURE 7A**

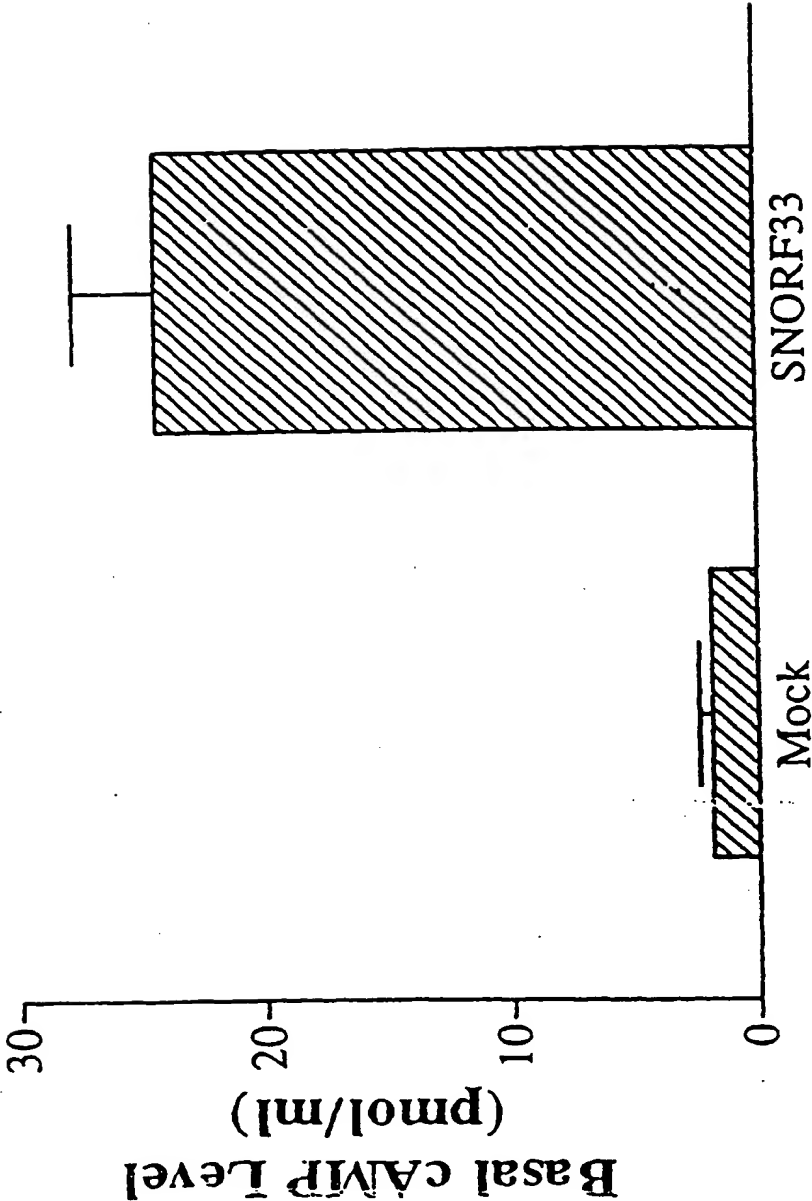
Rat	SNORF33	1	MHLCHNSANISHTNSNWSRDVRASLYSLIILTTLVGNLIVISISH	49
Hum	SNORF33	1	MMPFCHNIINISCVKNNWSNDVRASLYSLMVLIIITTLVGNLIVIVSISH	50
Rat	SNORF33	50	FKQLHTPTNWLLHSMVAVDFLLGCLVMPYSMVRTVEHCWYFGEFCKLHT	99
Hum	SNORF33	51	FKQLHTPTNWLIHSMATVDFLLGCLVMPYSMVRSAEHCWYFGEVFCKIHT	100
Rat	SNORF33	100	STDIMLSSASILHLAFISIDRYYAVCDPLRYKAKINLAAIFVMILISWSL	149
Hum	SNORF33	101	STDIMLSSASIFHLSFISIDRYYAVCDPLRYKAKMNILVICVMIFISWSV	150
Rat	SNORF33	150	PAVFAFGMIFLELNLEGVEELYHNQVFCFLRGCFPFSSKVSGLAFMTSFY	199
Hum	SNORF33	151	PAVFAFGMIFLELNFKGAEEIYKXHVHCRGGCSVFFSKISGVLTFMTSFY	200
Rat	SNORF33	200	IPGSVMLEVYYRIYFIKQARSINRAN..LQVGLEGESRAPQSKETKAA	247
Hum	SNORF33	201	IPGSIMLCVYYRIYLIAKEQARLISDANQKLGLEMKNGISQSKERKAV	250

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## FIGURE 7B

Rat SNORF33	248	KTGIMVG'FLLCWCPEFFFCMVLDPFLGYVIPPTLNDTLNWFGYLN	297	
		..    :    -   :     :     :		
Hum SNORF33	251	KTGIMVGFLICWCPEFFICTVMDPFLHYIIPPTLNDVLIWFGYLN	300	
Rat SNORF33	298	PMVYAFFYPWFRRALKMVLFGKIFQKDSRSRKLFL....*	333	
		:     .		
Hum SNORF33	301	PMVYAFFYPWFRKALKMMLFGKIFQKDSRSRCKLFLELSS*	340	

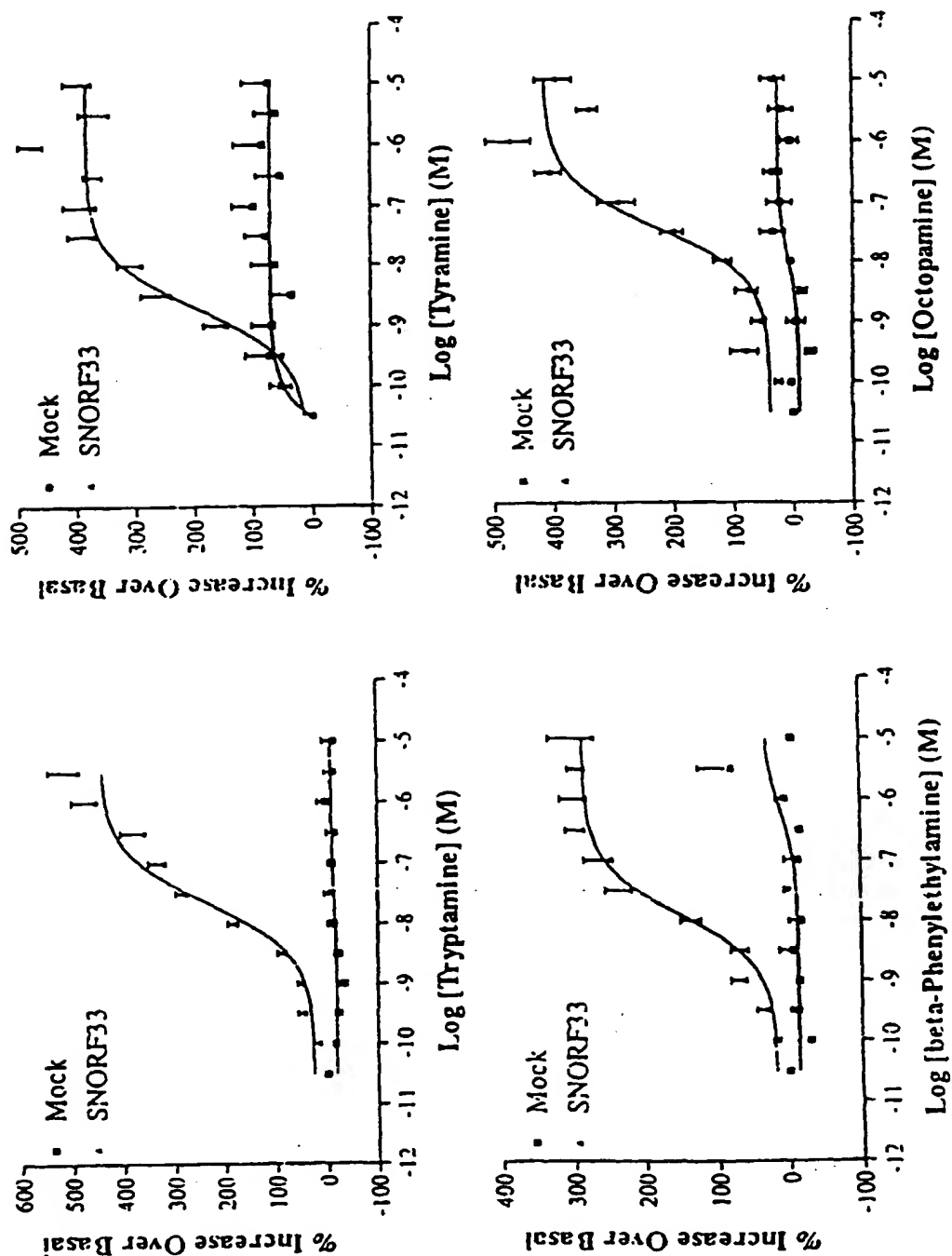
**FIGURE 8**  
**Basal cAMP Levels in Mock- and rat**  
**SNORF33-Transfected Cos-7 cells**





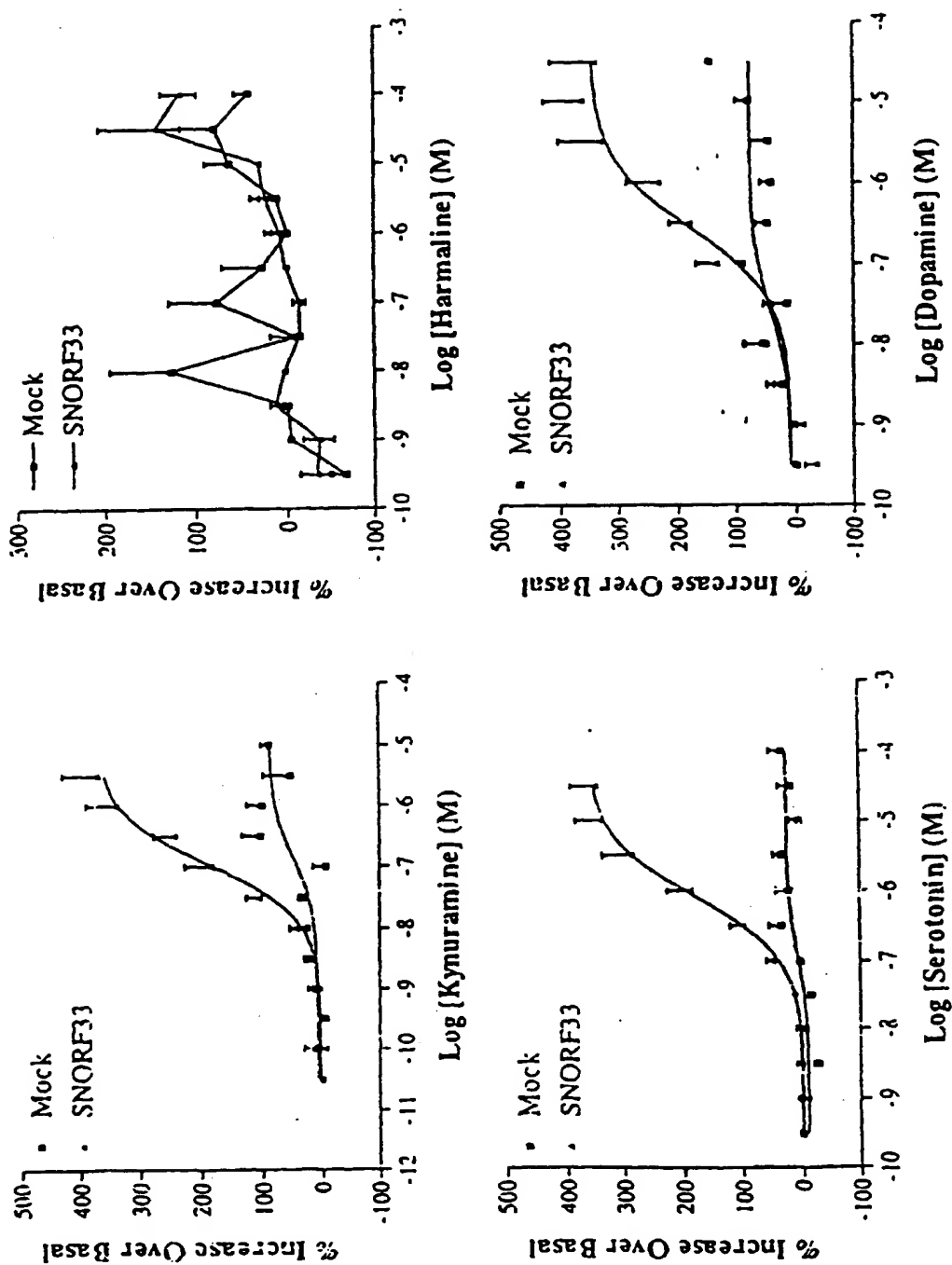
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FIGURE 9  
Agonist-Mediated Increase in Intracellular cAMP Levels in  
Mock- and rat SNORF33-Transfected Cos-7 Cells



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FIGURE 10  
Agonist-Mediated Increase in Intracellular cAMP Levels in  
Mock- and rat SNORF33-Transfected Cos-7 Cells



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Figure 11A

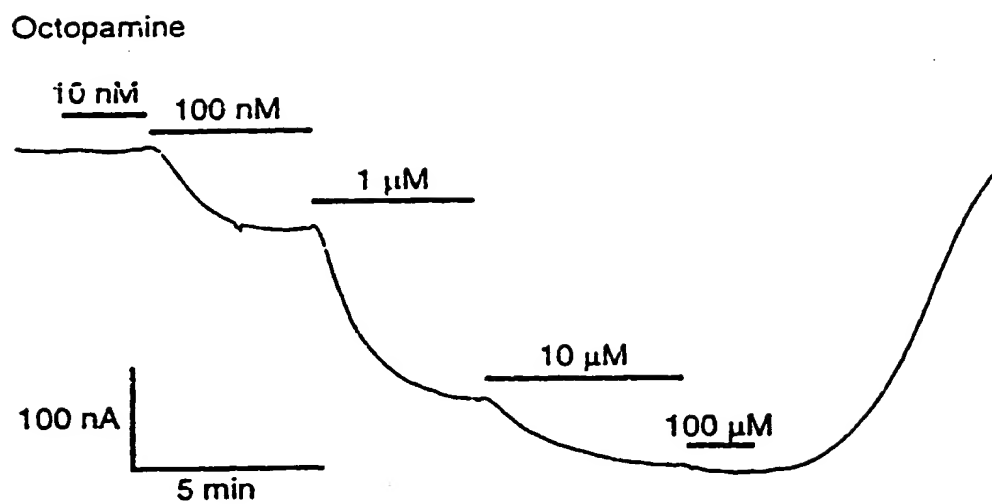


Figure 11B

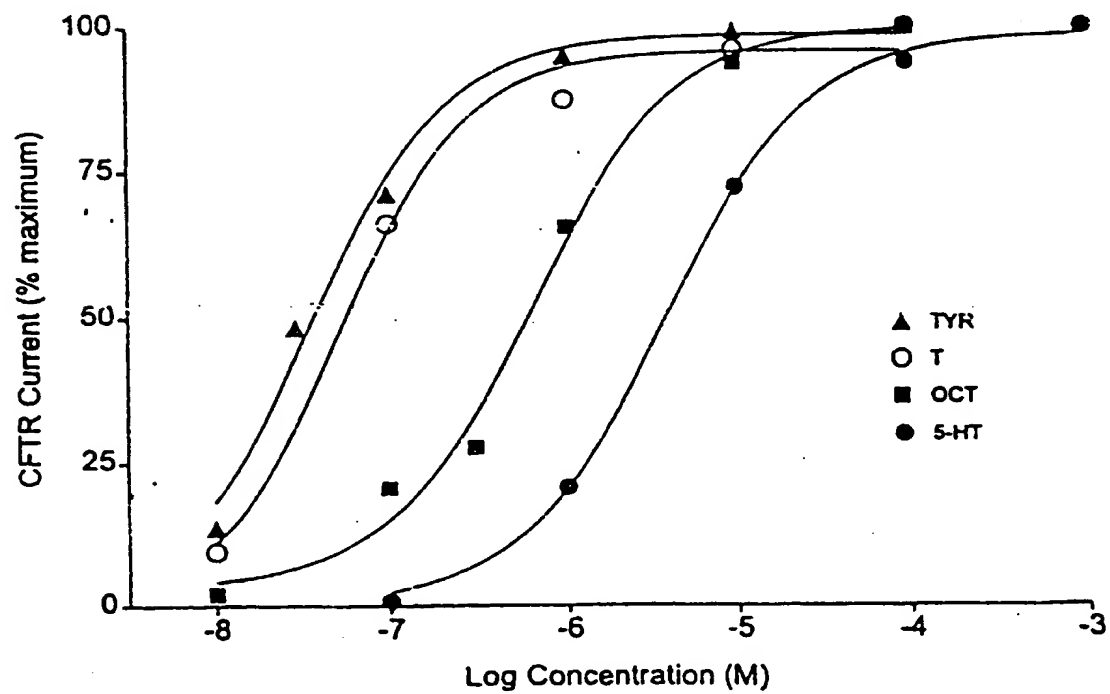
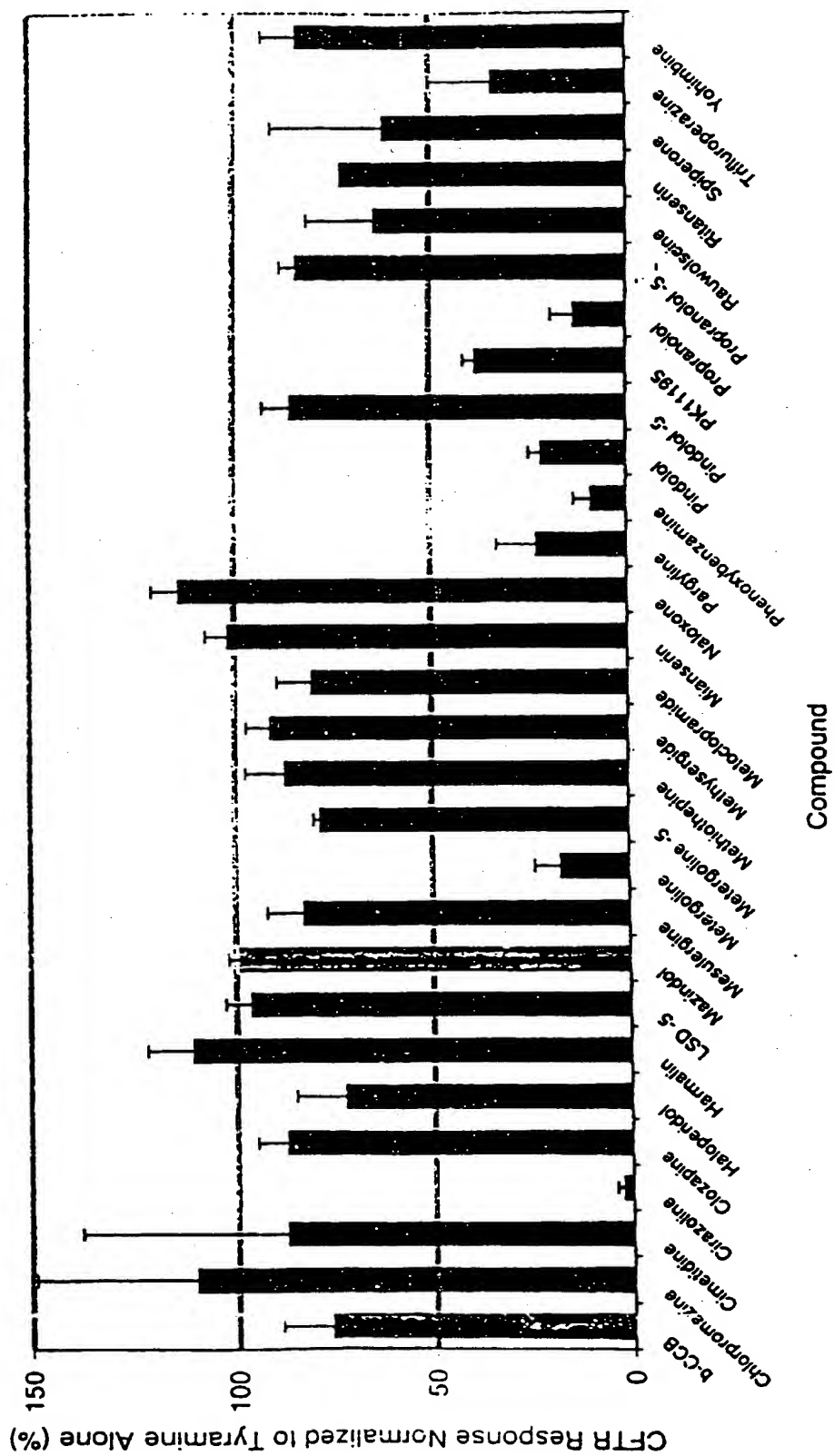


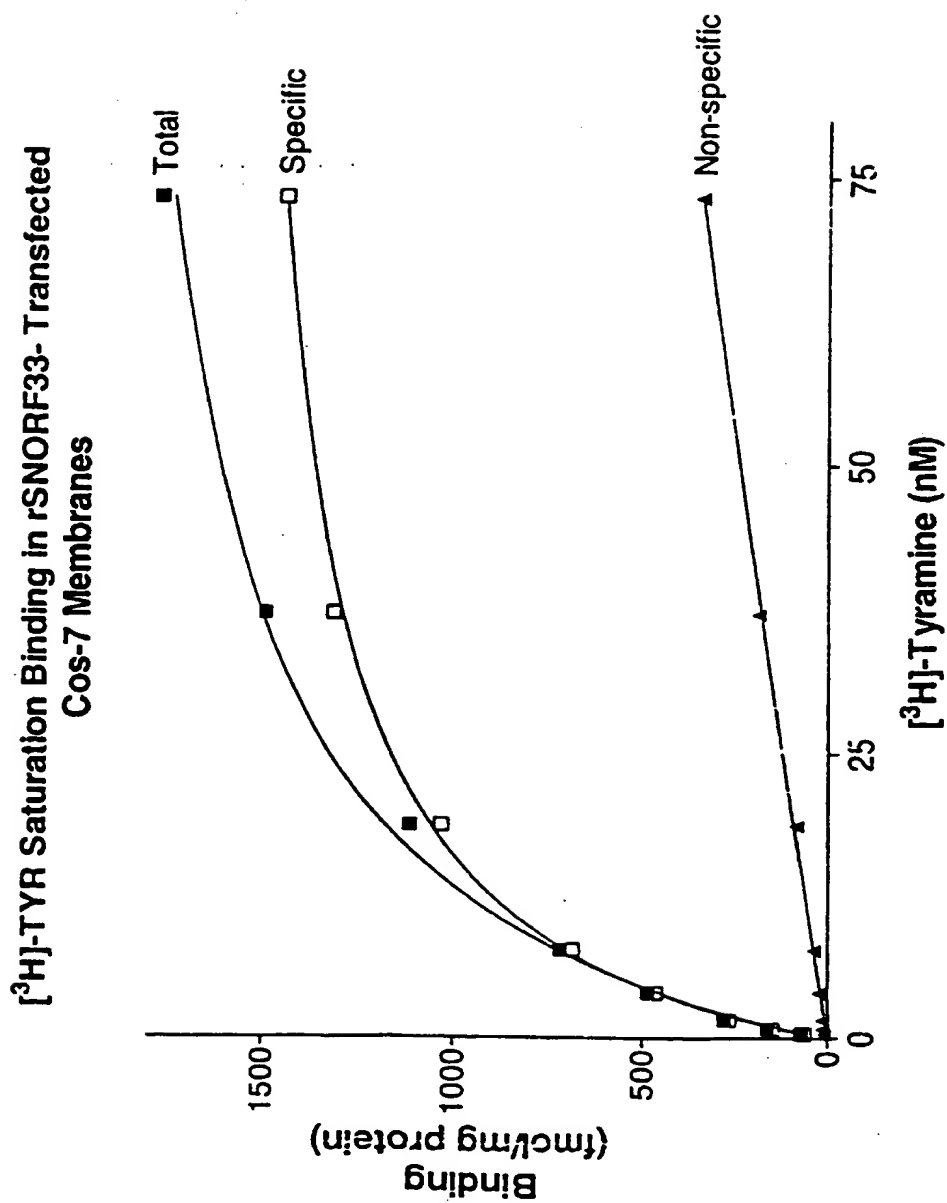
Figure 12

Antagonism of SNORF33 responses by  
various compounds



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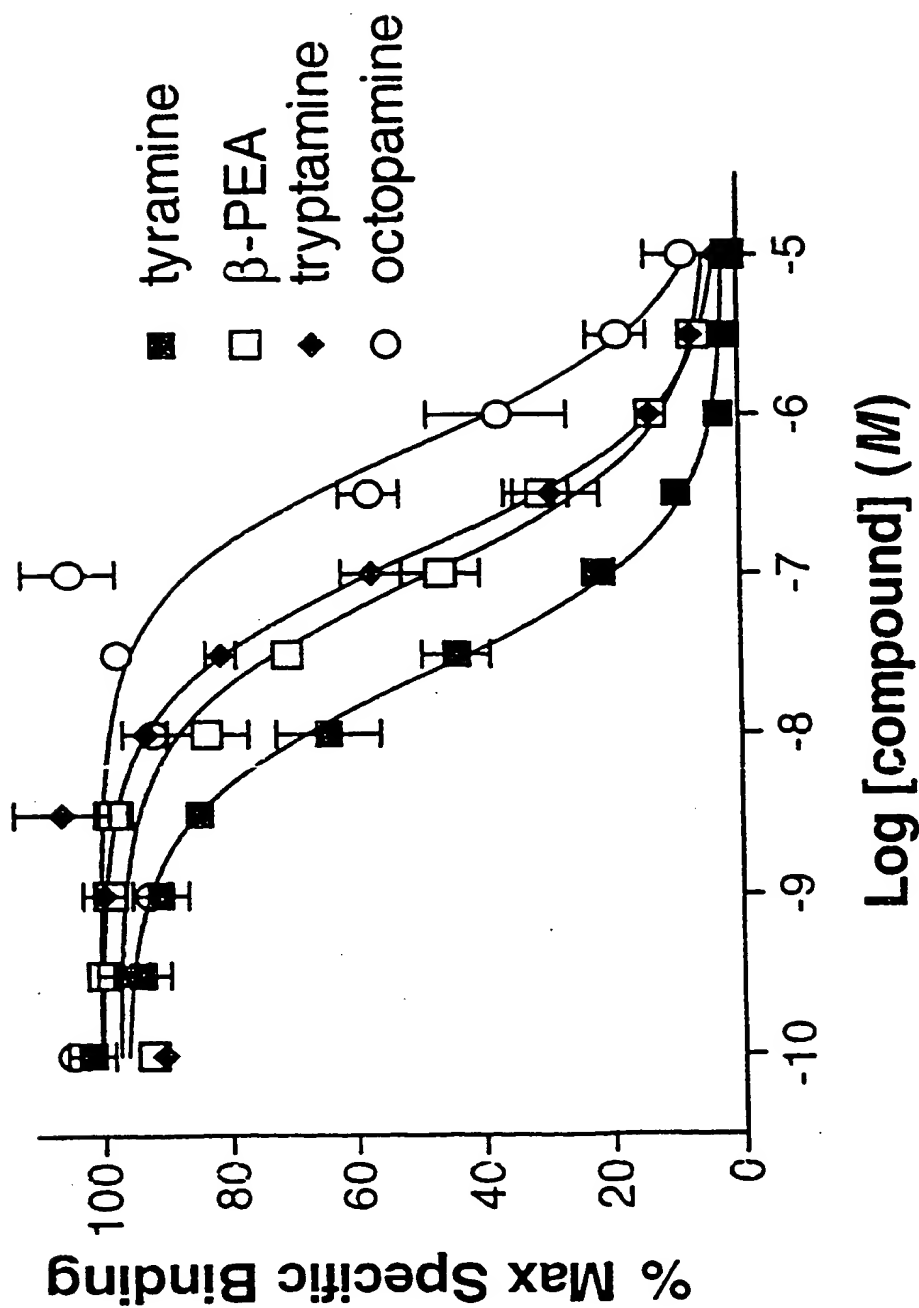
Figure 13



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Figure 14

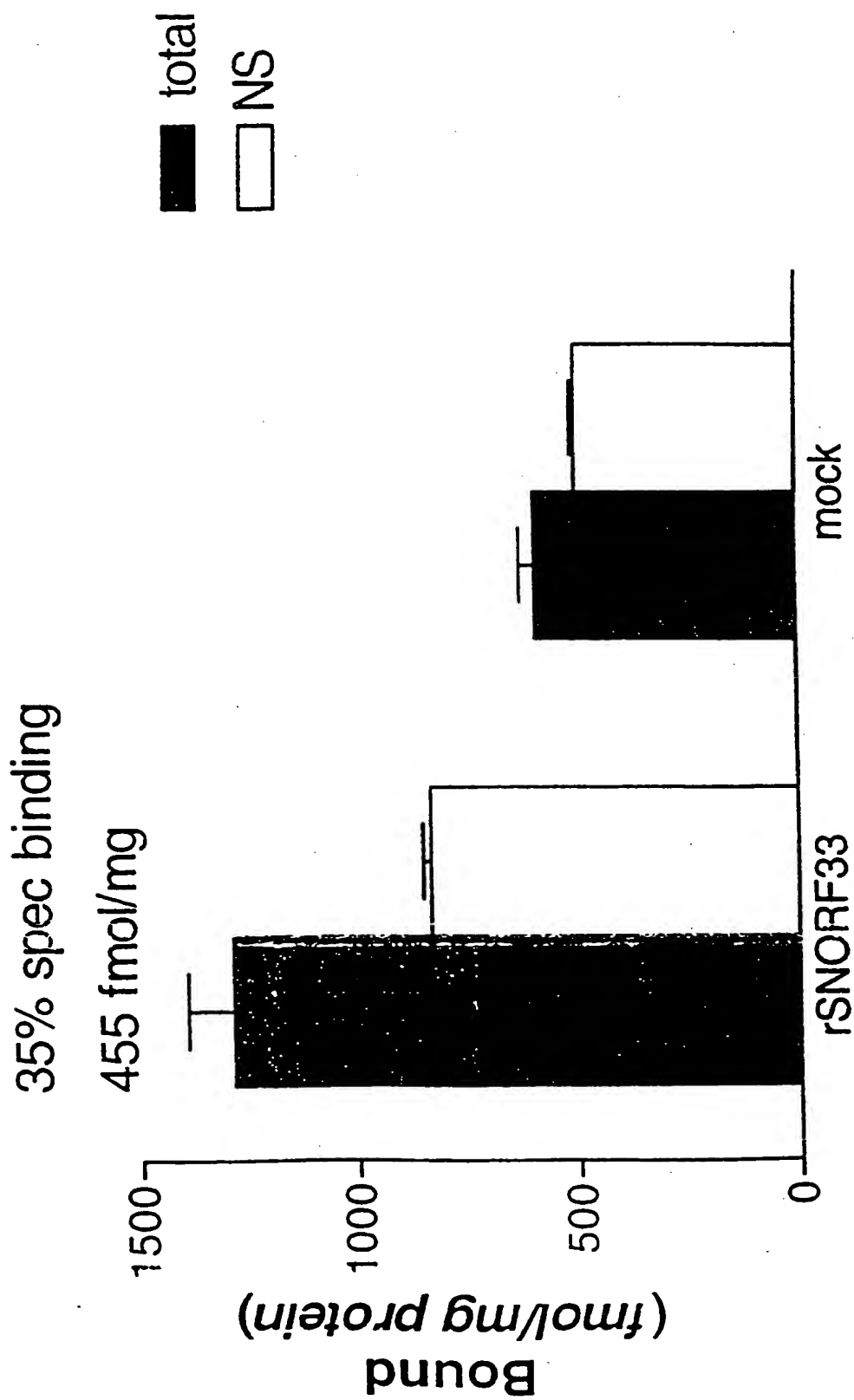
Displacement of Specific  
[<sup>3</sup>H]-TYR Binding in rSNORF33-  
Transfected Cos-7 Membranes



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**[<sup>3</sup>H]-T (20 nM) Binding in  
rSNORF33- and Mock-  
Transfected Cos-7 Membranes**

Figure 15



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Figure 16

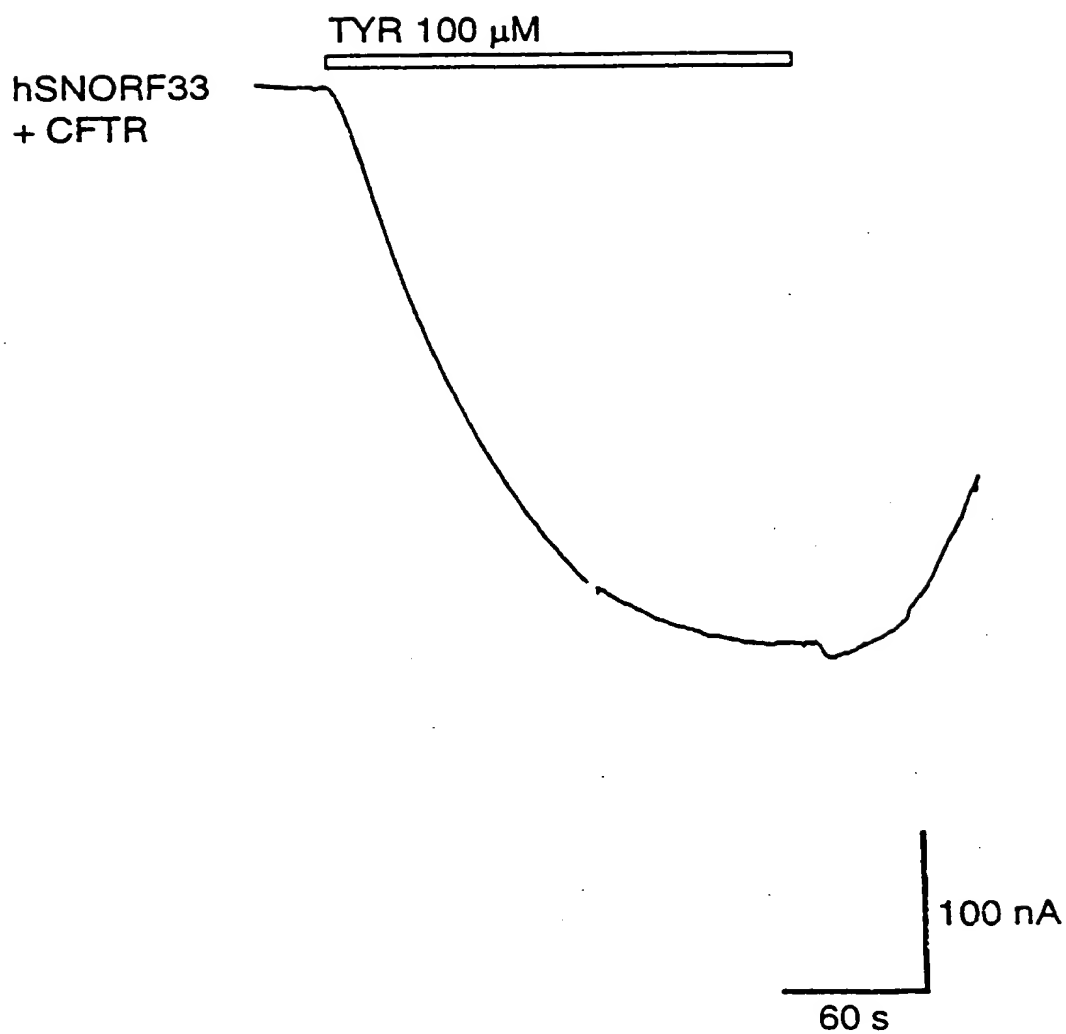




Figure 17

1 GGTACTGGCGTTTCATGACTTCCCTTCTATATATACCTGGATCTGTTATGTATTGTTACTA 60  
61 TAGGATATATTTCA TAGCTAAAGGACAAAGCAAGGTCAATCAATCGTACGAAATGTTCAAGT 120  
121 TGGATTGGAAGGAAAGCCAAAGCACCAAGCAAGGAAACAAAGCCGCGAAGACCTT 180  
181 AGGATCATGGTGGGCGTTTTCCTCGTATGCTGGTGCCCGTTCTTTCTCTGCACGGTCCCT 240  
241 GGACCCCTTTCCT 252

## Figure 18

[illegible]

## FIGURE 19A

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1	TGCAGTGATGCATCTTTGGCCACGCTATCACAAACATTCCACAGAAACAGCGACTGGTC	60
61	AAGAGAAAGTCCAAGCTTCCCTGTACAGCTTAATGTCACTCATAATCCTGGCCACTCTGGT	120
121	TGGCAACTTAATAGTAATAATTCCATATCCCATTTCAAGCAACTTCATACACCCACCAA	180
181	CTGGCTCCTTCACTCCCATGGCCATTGTCGACTTTCTGCTGGGCTGTCTGATAATGCCCTG	240
241	CAGCATGGTGAGAACTGTTGAGCGCTGTTGGTATTTTGGGGAATCCTCTGTAAAGTTCA	300
301	CACCAGCACCGATATCATGCTGAGCTCCGCCCTCCATTTTCCACTTAGCTTTTCATTTCCAT	360
361	TGACCCGCTACTGTGCTGTGTGACCCCTTTGAGATACAAAGCCAAGATCAATATCTCCAC	420
421	TATTCTTGTGATGATCCTCGTTAGTTGGAGCCCTTCCCTGCTGTTTATGCAATTTGGGATGAT	480
481	CTTCCTGGAACTGAACCTTAAAGGAGTGGAAGAGCTGTATCGCAGTCAGGTCAGCGACCT	540
541	GGCGGGCTGTTCTCCCTTCTTTAGTAAAGTATCTGGGGTACTGGCGTTTCATGACTTCCTT	600

## FIGURE 19B

601 CTATATACCTGGATCTGTTATGTTATTTGTTTACTATAGGATATATTTTCATAGCTAAAGG 660  
661 ACAAGCAAGGTCAATCAATCGTACGAAATGTTCAAGTTGGATTGGAAGGGAAGCCAAAGC 720  
721 ACCACAAAGCAAGGAACAAAGCCGCCGAAGACCCTTAGGGATCATGGTGGGCGTTTTCCT 780  
781 CGTATGCTGGTGCCCGTTCTTTCTCTGCACGGTCCCTGGACCCCTTTCCTGGGCTATGTTAT 840  
841 CCCACCCCTCTCTGAATGACGCACCTGTATTGGTTTGGGTACTTGAATTCTGCCCCCTCAATCC 900  
901 GATGGTTTATGCCCTTTTCTATATCCCTGGTTCAGAAAGAGCCCTTGAAGATGGTTCCTCCTTGG 960  
961 TAAATTTTCCAAAGATTCAATCATCTAGGTCTAAGCTATTTTGTAAACGCAATTCAATGAAA 1020  
1021 CCCATGTATTT 1031

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FIGURE 20A

1	M	H	L	C	H	A	I	T	N	I	S	H	R	N	S	D	W	S	R	E	20
21	V	Q	A	S	L	Y	S	L	M	S	L	I	I	L	A	T	L	V	G	N	40
41	L	I	V	I	I	S	I	S	H	F	K	Q	L	H	T	P	T	N	W	L	60
61	L	H	S	M	A	I	V	D	F	L	L	G	C	L	I	M	P	C	S	M	80
81	V	R	T	V	E	R	C	W	Y	F	G	E	I	L	C	K	V	H	T	S	100
101	T	D	I	M	L	S	S	A	S	I	F	H	L	A	F	I	S	I	D	R	120
121	Y	C	A	V	C	D	P	L	R	Y	K	A	K	I	N	I	S	T	I	L	140
141	V	M	I	L	V	S	W	S	L	P	A	V	Y	A	F	G	M	I	F	L	160
161	E	L	N	L	K	G	V	E	E	L	Y	R	S	Q	V	S	D	L	G	G	180

**FIGURE 20B**

181	C S P F F S K V S G V L A F M T S F Y I	200
201	P G S V M L F V Y Y R I Y F I A K G Q A	220
221	R S I N R T N V Q V G L E G K S Q A P Q	240
241	S K E T K A A K T L G I M V G V F L V C	260
261	W C P F F L C T V L D P F L G Y V I P P	280
281	S L N D A L Y W F G Y L N S A L N P M V	300
301	Y A F F Y P W F R R A L K M V L L G K I	320
321	F Q K D S S R S K L F L	332

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## FIGURE 21

Rat	SNORF33	-MhlCHnsan	IShtnsnWSr	dVrASLYSLi	sLIILtTLVG
Mouse	SNORF33	-MhlCHaitN	IShrnsdWSr	eVqASLYSLm	sLIILaTLVG
Human	SNORF33	mMpfCHniin	IScvknnWSn	dVrASLYSLm	vLIILtTLVG
Consensus		-M--CH---N	IS-----WS-	-V-ASLYSL-	-LIIL-TLVG
Rat	SNORF33	NLIViisISH	FKQLHTPTNW	LlHSMAvVDF	LLGCLvMPyS
Mouse	SNORF33	NLIViisISH	FKQLHTPTNW	LlHSMAiVDF	LLGCLiMPcS
Human	SNORF33	NLIVivSiSH	FKQLHTPTNW	LiHSMatVDF	LLGCLvMPyS
Consensus		NLIVI-SISH	FKQLHTPTNW	L-HSMA-VDF	LLGCL-MP-S
Rat	SNORF33	MVRtvEhCWY	FGElfCKlHT	STDIMLSSAS	IlHLaFISID
Mouse	SNORF33	MVRtvErCWY	FGEilCKvHT	STDIMLSSAS	IfHLaFISID
Human	SNORF33	MVRsaEhCWY	FGEvfCKiHT	STDIMLSSAS	IfHLSFISID
Consensus		MVR--E-CWY	FGE--CK-HT	STDIMLSSAS	I-HL-FISID
Rat	SNORF33	RYyAVCDPLR	YKAKiNlaaI	fVMiliSWSl	PAVfAFGMIF
Mouse	SNORF33	RYcAVCDPLR	YKAKiNistI	lVMilvSWSl	PAVyAFGMIF
Human	SNORF33	RYyAVCDPLR	YKAKmNilvI	cVMifiSWSv	PAVfAFGMIF
Consensus		RY-AVCDPLR	YKAK-N---I	-VMI--SWS-	PAV-AFGMIF
Rat	SNORF33	LELNleGvEE	lyhnqVfclr	GCfpFFSKvS	GVLafMTSFY
Mouse	SNORF33	LELNlkGvEE	lyrsqVsdlg	GCspFFSKvS	GVLafMTSFY
Human	SNORF33	LELNfkGaEE	iYykhVhcrG	GCsvFFSKiS	GVLtFMTSFY
Consensus		LELN--G-EE	-Y---V----	GC--FFSK-S	GVL-FMTSFY
Rat	SNORF33	IPGSvMLfvY	YRIYfiAKgQ	ARsInraN..	lQvGLEgesr
Mouse	SNORF33	IPGSvMLfvY	YRIYfiAKgQ	ARsInrtN..	vQvGLEgksq
Human	SNORF33	IPGSiMLcVY	YRIYliAKeQ	ARlIsdaNqk	lQiGLEmkng
Consensus		IPGS-ML-VY	YRIY-IAK-Q	AR-I---N--	-Q-GLE----
Rat	SNORF33	apQSKetKAa	KTLGImvGVF	LlCWCPFFfC	mVlDPFLgYv
Mouse	SNORF33	apQSKetKAa	KTLGImvGVF	LvCWCPFFlC	tVlDPFLgYv
Human	SNORF33	isQSKerKAV	KTLGIvmGVF	LiCWCPFFiC	tVmDPFLhYi
Consensus		--QSKE-KA-	KTLGI--GVF	L-CWCPFF-C	-V-DPFL-Y-
Rat	SNORF33	IPPtLNDtLn	WFGYLNSafN	PMVYAFFYPW	FRrALKMvLf
Mouse	SNORF33	IPPsLNDaLy	WFGYLNSalN	PMVYAFFYPW	FRrALKMvLl
Human	SNORF33	IPPtLNDvLi	WFGYLNSstfN	PMVYAFFYPW	FRkALKMmLf
Consensus		IPP-LND-L-	WFGYLNS--N	PMVYAFFYPW	FR-ALKM-L-
Rat	SNORF33	GKIFQKDSSR	sKLFL		
Mouse	SNORF33	GKIFQKDSSR	sKLFL		
Human	SNORF33	GKIFQKDSSR	cKLFLelss		
Consensus		GKIFQKDSSR	-KLFL----		